

**POTENTIALS AND PITFALLS OF CONTRACT FARMING THROUGH AGRICULTURAL COOPERATIVES IN GREECE**

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**Abstract**

In recent years, Greece experiences a very intensive financial crisis that -as it is expected- has important effects on the primary sector. A new form of entrepreneurship for Greece, contract farming, appeared the last years. A successful case study of contract farming in Greece is between the large enterprise "ATHENIAN BREWERY" and the producers-members of two agricultural cooperatives of Northern Greece. The main aim of this paper is to examine the process of contract farming through agricultural cooperatives. Specifically, this paper investigates the production process of malted barley through contracts of members of the cooperative of Epanomi and the cooperative of Tribfos, in the Prefecture of Thessaloniki (Northern Greece) and the private firm "ATHENIAN BREWERY". Using a structured questionnaire that it was distributed in 132 producers- members of the agricultural cooperative of Epanomi or Tribfos it was examined the advantages and the disadvantages of this form of cooperation for both growers-members of these two cooperatives and the private firm. Moreover, it was investigated the role of agricultural cooperatives in the process of contract farming. The results reveal that the most important benefit for the growers is to ensure availability of the products in a predetermined price. The most important benefit for "ATHENIAN BREWERY" is a better production plan which ensures a certain quantity and quality of raw materials. The role of both cooperatives is determinative as it guarantees the safety of the process for both contracting parties.

**Key words:** contract farming, financial crisis, agricultural cooperatives, producers

**Jel codes:** Q13, Q14, Q16

**1. Introduction**

The food sector is one of the most important branches of processing in the world. In recent years, major developments have taken place in the sector, mainly stemming from redistribution in the global system of the production and sale of agricultural products. Agricultural systems are increasingly being organised into chains and networks, where the coordination of production, processing and distribution activities is a key feature. In other words, contracts between producers, on the one hand, and agricultural product processing plants, on the other, constitute a method for strengthening the coordination of the agri-food chain (Little and Watts, 1994).

Contracts concern production coefficients, credit and crop expansion services in exchange for production methods, so as to meet market obligations as regards the quantities that must be delivered and the quality of the product.

The institution of contract farming began as a basic operational principle between German cooperatives and their members, mainly in regard to vulnerable agricultural products (19<sup>th</sup> century) (Warning and Hoo, 2000). In the countries of North America and Western Europe, the institutional initially focused primarily on the production and

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processing of fruit and vegetables. Subsequently, during the second half of the 20th century, the first contracts for poultry and, later on, pig farming were signed. 75% of Brazil's poultry production and 90% of Vietnam's dairy production is based on contracts ([www.farmacon.gr](http://www.farmacon.gr)). Contract farming (CF) first began decades ago (Little and Watts, 1994).

In our country, contract farming has been informally in place for many years. However, still remains limited in terms of both variety of crops and cultivated area, and concerns a small number of products (mainly sugar, tomato paste, pasta, brewery barley, legumes and vegetables). Only recently it emerged in its systematic form, which is highly promising for the sustainability of small and medium-sized farms. The 'gold' list of new contract farming programmes include, among others, wheat, oil, table olives, milk, wine, tobacco, cotton, fruit and certain energy crops such as sunflowers (Leite et al., 2013; Leonardo et al., 2015).

It should be noted that the contract farming sector is also of particular interest to Banks, which create and promote special programmes for financing both producers and purchasers, in order to help the growth of this form of agriculture and provide incentives for joining it.

According to a recent study (2013) conducted with the participation of 1,200 farmers throughout Greece, 13.7% of Greek farmers have already adopted contract farming, while 24.8% wish to do so but have not done so yet (Michailidis et al., 2014). The farmers who have adopted contract farming mainly wish to limit risk and uncertainty and secure an assured source of income. However, many farmers still harbour reservations. At the same time, this study highlighted the contribution of contract farming to the growth of the agricultural sector and the views of producers on contract farming, reaching the conclusion that the institution of contract farming can upgrade the role played by farmers in the immediate future, as farmers will become entrepreneurs, will stop basing their growth on state or Community subsidies and will invest in education and information on new forms of agriculture. Additionally, they will learn how to adapt to the consumer needs of the market, consistently aiming at the high quality and hygiene of the products they produce. However, the key result of the contract farming model will be the upgrade of the collective expression of farmers through new cooperatives and producer organizations. The key objective of this paper is to study contract farming through agricultural cooperatives and, more specifically, the process for the production of brewery barley by specific cooperatives in the broader region of Thessaloniki through contracts with the 'Athenian Brewery' company. For this purpose, a survey was conducted using questionnaires completed by members of the cooperatives of Trilofos and Epanomi, of the Municipalities of Thermi and Thermaikos, respectively, in Region of Central Macedonia, Greece, in 2015.

Moreover, there will be investigated:

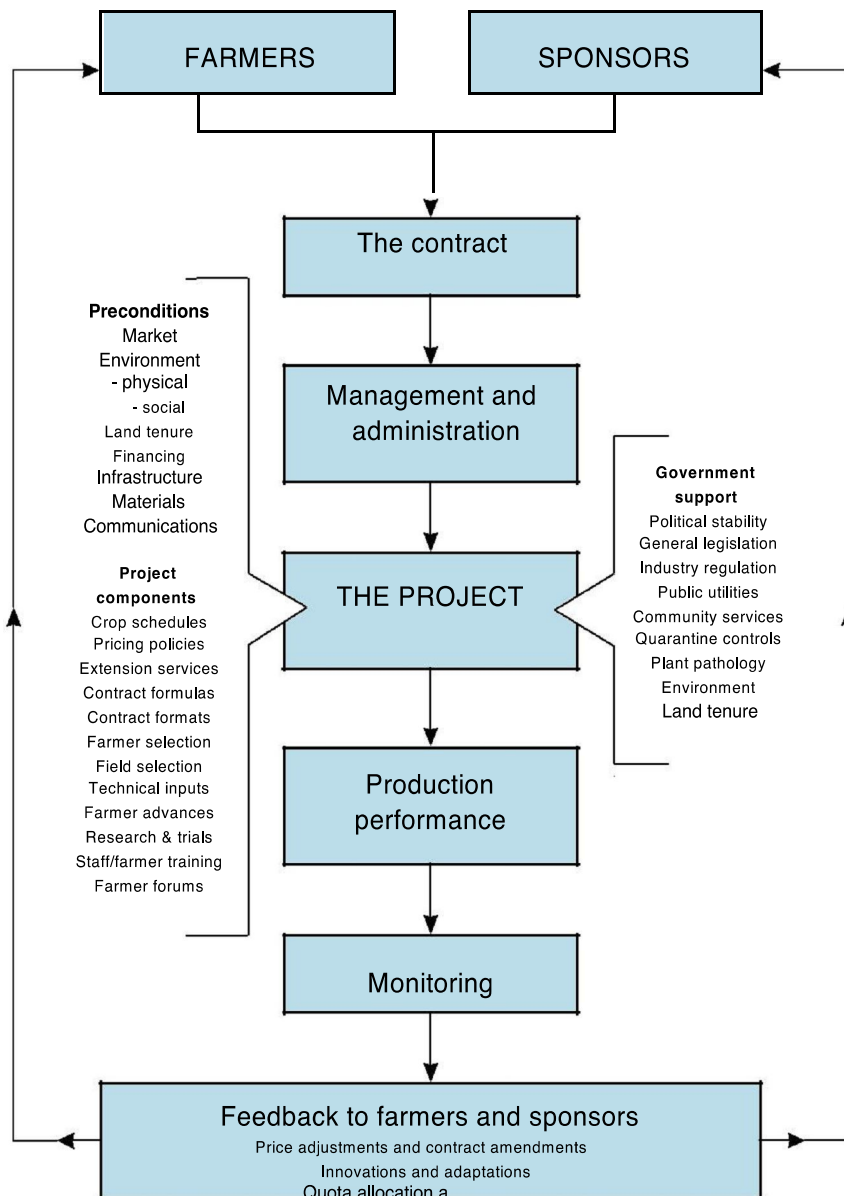
- The producer's benefits from contract farming.
- The firm's benefits from contract farming.
- The cooperative's benefits from contract farming.
- The interrelation between contract farming and economic crisis in Greece.

The paper is structured as follows. Hereafter the theoretical framework is discussed. Then the profile of the contractor is analysed. Afterwords, the methodology and the analysis are presented. The last section concludes with implications for academic research and practitioners.

## 2. Theoretical framework

Contract farming is an efficient way to coordinate production issues in the agricultural sector. One of the basic characteristics is that it is an agreement between unequal parties: on the one hand private firms or individual entrepreneurs or government institutions and on the other hand the economically weaker farmers that have plenty of advantages for all of them.

Figure 1: a contract farming framework



Source: Adopted from Eaton, C.S., 1998: p. 274.

Table 1: **Characteristics of contract farming structures**

<b>STRUCTURE – MODEL</b>	<b>FIRM</b>	<b>GENERAL CHARACTERISTICS</b>
<b>Centralized</b>	Private corporate sector State development agencies	Directed contract farming. Popular in many developing countries for high-value crops. Commitment to provide material and management inputs to farmers.
<b>Nucleus estate</b>	State development agencies Private/public plantations Private corporate sector	Directed contract farming. Recommended for tree crops, e.g. oil palm, where technical transfer through demonstration is required. Popular for resettlement schemes. Commitment to provide material and management inputs to farmers.
<b>Multipartite</b>	Sponsorship by various organizations, e.g. <ul style="list-style-type: none"> <li>• State development agencies</li> <li>• State marketing authorities</li> <li>• Private corporate sector</li> <li>• Landowners</li> <li>• Farmer cooperatives</li> </ul>	Common joint-venture approach. Unless excellent coordination between sponsors, internal management difficulties likely. Usually, contract commitment to provide material and management inputs to farmers.
<b>Informal developer</b>	Entrepreneurs Small companies Farmer cooperatives	Not usually directed farming. Common for short-term crops; i.e. fresh vegetables to wholesalers or supermarkets. Normally minimal processing and few inputs to farmers. Contracts on an informal registration or verbal basis. Transitory in nature.
<b>Intermediary (tripartite)</b>	Private corporate sector State development agencies	Sponsors are usually from the private sector. Sponsor control of material and technical inputs varies widely. At time sponsors are unaware of the practice when illegally carried out by large-scale farmers. Can have

The term '*contract farming*' means the form of production of agricultural products that is based on the signing of a binding contract between individual farmers or farmers' cooperatives, on the one hand, and enterprises (contractors) that supply an agricultural holding or purchase an agricultural product or both, on the other (Moysidis, 1988; Glover & Kusterer, 1990; Eaton & Shepherd, 2001). These agreements are based on a commitment on the part of the farmer, on the one hand, to provide a specific product in terms of quality at quantities predetermined by the purchaser, and a commitment on the

part of the processing unit, on the other, to support the producers by providing resources and technical assistance and to purchase the product produced.

According to the New Institutional Economics (NIE), contract farming is an institutional adaptation by several rational thinking economic actors to the existing market failures. Therefore, contract farming is supposed to be an alternative to full integration or reliance to spot markets (Bolwig et al., 2009). As a mechanism that helps to share risk and minimize transaction costs, it benefits both the contractor and the farmers. To reach a mutually beneficial outcome, however, the arrangement requires well-informed negotiations and mechanisms to enforce the contract (Smalley, 2013, p.16).

Some of the elements that are found in agricultural contracts involve the duration of the contract, the quantity that the farmer is obliged or allowed to deliver, the detailed description of the quality standards to be applied, the cultivation/raising practices required by the contractor, the timing and the place of delivery, technical assistance, procedures for paying farmers and reclaiming credit advances, the product price, insurance issues and finally procedures of dispute resolution (Bijman, 2008; Singh, 2002; Moysidis, 1988). Contract farming appears in several models depending mostly on the product, the resources of the firm as well as the interrelation between the farmer and the firm. The most commonly used are five models: the centralized, the nucleus estate, the multipartite, the informal developer and the intermediary (tripartite) (Chinaki, 2015; Prowse 2012: 57-58; Drucker, 1983; Eaton and Shepherd, 2001). The general characteristics of each model appear in the following table (Table 1).

Another way of categorizing contracts is by separating them between formal (or written) and informal (or verbal) contracts. (Bijman, 2008; Bogetoft and Olesen, 2004). The informal model is very commonly used in agriculture either because the contract contains variables that cannot easily be verified or because it is very difficult for third parties to understand if the characteristics of the product delivered are the same with those described in the contract. Moreover, in many occasions, informal contracts are less costly because they rely on self-enforcement instead of third party protection (Bijman, 2008). Finally, in cases of informal contracts, there exist social and financial motives to honour the contract (Nooteboom, 2002), namely the mutual economic dependence among parties or the «reputation mechanism», which means that all parties must have a mutual interest to cooperate as they expect payoffs from future cooperations (Bogetoft and Olesen, 2004; McLeod, 2007).

Mighell and Jones (1963) have developed a classical typology of agricultural contracts. They distinguish contracts between market-specification, production-management and resource-providing. Their main differences are related to their main objectives, the transfer of decision-rights (from the farmer to the contractor) as well as in the transfer of risks.

The potentials and the pitfalls of contract farming have been extensively described in the literature review (Bijman, 2008). Further down, there are presented the most important potentials and pitfalls according to the literature review in the agricultural sector for farmers and contractors.

### **2.1. Potentials**

One of the main benefits for all parties participating in contract farming is that when it is efficiently organized and managed, it reduces risk and uncertainty for all parties as compared to buying and selling crops on the open market. However, critics of contract farming stress the inequality of the relationship and the stronger position of firms (contractors) with respect to that of farmers. Consequently, contract farming is viewed as

essentially benefiting firms by enabling them to obtain cheap labour and to transfer risks to growers.

Further down, there are presented the main potentials and pitfalls according to the literature review:

### **Potentials for farmers:**

1. Provides entry to lucrative markets.
2. Marketing risk is transferred to the contractor: the contractor will purchase all products within specified quality and quantity characteristics.
3. Provides access to credit and farm inputs: contractors provide farmers with access to a variety of technical, managerial and extension services which are very important for the farmers (Allen, 1972; Dolinsky, 1992; Eaton et al., 2001; Warning and Hoo, 2000).
4. Farmers receive technical assistant and information on end markets (Roberts et al., 1991; Mishra, 1996).
5. Forward contracts provide collateral, insurance and stable prices.
6. Provides work for surplus family labour (Smalley, 2013; Prowse, 2012).
7. Enables farmers to learn more skills and introduce new technology.
8. Provides access to reliable markets (Glover, 1984; Key and Runsten, 1999; Singh, 2002) and moreover it opens new markets which would otherwise be unavailable to small farmers.

### **Potentials for contractors:**

1. Working with small farmers overcomes land constraints.
2. Production is more reliable than open-market purchases and the contractor faces less risk by not being responsible for production.
3. More consistent quality can be obtained than if purchases were made on the open market.
4. Ensures a reliable supply of produce, facilitates coordination.
5. Provides ability to control the production process (MacDonald et al.; 2004).
6. Less costly and risky than plantations or other forms of full integration.
7. Production risk is transferred to farmers.
8. Avoids land acquisition and related fixed investments.
9. Avoids transaction costs of supervising workers and dealing with unions.
10. Provides a means to induce production where land acquisition is not possible.
11. Overcoming land constraints.

However, there are also advantages at the national level. The general implementation of the institution of production via contracts affects the economy of a country, as contract-based cooperation between producers and processing enterprises leads to rationalisation of the process of producing and processing products and, thus, to effectiveness. Such partnerships contribute towards upgrading agricultural production and achieving technological progress. This also achieves better organisation of numerous isolated small holdings and more effective planning of the production process. The above positive functions of contract farming are of interest to the state, which tries, for this reason, to favour this form of production by adopting specific measures, such as subsidies and programmes.

## **2.2. Pitfalls**

### **Pitfalls for farmers**

1. Particularly when growing new crops, farmers face the risks of both market failure and production problems.

2. Inefficient management or marketing problems can mean that quotas are manipulated so that not all contracted production is purchased.
3. Contractors may be unreliable or exploit a monopoly position.
4. The personnel of contractor may be corrupt, particularly in the allocation of quotas.
5. Farmers may become indebted because of production problems and excessive advances.
6. Vulnerable to crop or contract failure, especially if up-front investment was required.
7. Contractors may exploit farmers' lack of alternative sources.
8. Loss of producer autonomy.

These potential problems may be minimized by efficient management that consults frequently with farmers and closely monitors field operations.

### **Pitfalls for contractors**

1. Contracted farmers may face land availability constraints due to lack of security of tenure, thus jeopardizing sustainable long-term operations.
2. Social and cultural constraints may affect farmers' ability to produce to managers' specifications.
3. Poor management and lack of consultation with farmers may lead to farmer discontent.
4. Farmers may sell outside the contract (extra-contractual marketing) thereby reducing processing factory throughput.
5. Farmers may divert inputs supplied on credit to other purposes, thereby reducing yields.
6. Inability of contractor to enforce contracts or achieve monopsony could encourage side-selling and jeopardize supply.
7. High transaction costs of supervising production; input diversion.
8. High cost of negotiating and monitoring contracts; risk of defaults; farmers might be unable to meet quality and quantity requirements, or to manage risk.

As a concluding remark, the advantages/disadvantages of the application of contract farming vary according to physical, social and market parameters. According to Smalley (2013, p. 10) "...The distribution of risks will depend on such factors as the nature of the markets for both the raw material and the processed product, the availability of alternative earning opportunities for farmers, and the extent to which relevant technical information is provided to the contracted farmers. These factors are likely to change over time, as will the distribution of risks...". In any case, it is proven difficult to maintain a relationship where benefits are unfairly distributed between companies and farmers.

### **3. The profile of the "contractor"**

Within the framework of the programme for the production of brewery barley, Athenian Brewery is collaborating with member-producers of the agricultural cooperatives where the research for this dissertation took place.

The process of contract farming begins with the signing of annual contracts between the two contracting parties: the company and the producers. In order to conclude specific contracts, there are external associates of the company in each region of interest, who come into contact with producers, cooperatives or producer groups. The associates of Athenian Brewery conclude the agreement with producers, are responsible for the signing of the contracts and for unhindered cooperation at all stages of production until the final delivery of the product with the specific characteristics set out in the contracts. The

contract includes all the terms concerning the production process in details, strictly setting out the cultivars and area (in stremmas) that each producer must produce, the qualitative characteristics that the product produced must have, the site where the product will be collected and the process for its transport to the facilities of the company. In the contracts it concludes with producers, Athenian Brewery states the minimum selling price of barley. This ensures a minimum guaranteed income for the contracted farmers, which means that if market prices during harvest period fall below the minimum 'locked price' agreed upon in the contract, the producers participating in the programme will be paid on the basis of the contract price. On the other hand, if market prices during the harvest period are higher than the contract price, then the contracting farmers will receive the market price. Furthermore, the contract notes the time of payment of the contracting farmers, which, in this case, is one month after delivery of the product. From personal interviews conducted, it was found that one of the main advantages of contract farming with this company is the formality concerning the time and amount of payment.

The contracts also set out the method of harvest and collection of the product. Each producer has the right to cultivate more than one cultivars of those proposed by the company, but it is obligated to collect and delivery each cultivar separately. Finally, each contracting producer is obligated under the contract to deliver the entire product quantity produced to the company.

#### **4. Methodology**

A structured questionnaire was developed and answered by 92 cooperative members of agricultural cooperative of EPANOMI (70,2%) and 40 cooperative members of agricultural cooperative of TRILOFOS (29,8%) from August 2014 till November 2014. Respondents rated statements on a 5-point Likert scale anchored by "completely disagree" (1) versus "completely agree" (5).

More specifically, the questionnaire consists of 19 questions concerning the demographic characteristics of the interviewees, their agricultural holding, the species they cultivate and their opinion on the advantages and disadvantages of contract farming for the producers, the enterprise and the cooperative involved in contract farming.

According to summary statistics (Fig. 2) the most representative respondent of the sample is man (86,8%), between 45-54 years old (33,3%), married (74,6%), of a middle educational level (graduate of higher school) (37,7%), who lives permanently in the suburb of Thessaloniki, in northern Greece. Regarding his farm, one or two family members work in the farm (90,3%), he doesn't use external labour force (88,6%) and he cultivates less than 10 hectares (83,3%). Moreover, more than the 50% of the family income comes from his farm income (85,1%). His subsidiaries are less than 50% of his farm income (62,3%). The percentage of his farm income that comes from contract farming is between 20% and 50% (85,1%).

He learnt about contract farming from the agricultural cooperative (76,3%). The economic crisis in Greece affected "much" and "very much" (87,7%) his decision to sign a contract with satisfactory conditions (79,8%). He will urge / recommend other farmers to use contract farming (95,6%) and he will continue to use contract farming (98,2%).



Fig. 2: Summary statistics

	Personal characteristics	Farm characteristics
<b>Gender</b>	Man (86.8%)	1 or 2 family members work (90.3%)
<b>Age</b>	45-54 years old (33.3%)	None external employer (88.6%)
<b>Marital status</b>	Married (74.6%)	Farm size <10 ha (83.33%)
<b>Education</b>	High School Education (37.7%)	More than 50% of family income comes from the farm income (85.1%)
<b>Main profession</b>	Farmer (100%)	Subsidiaries <50% of his farm income (62.3%)
<b>Family income</b>	Agriculture (85.1%)	20-50% of farm income comes from contract farming (85.1%)

Regarding the potentials of contract farming for the farmers, the respondents believe that the most important benefits are the following (see Fig. 3):

- The price: "agree" or "strongly agree" (96.5%)
- The good relationship between the members and the cooperative as intermediary: (99.1%) "agree" or "strongly agree"
- Minimize market risk: "agree" (96.5%) or "strongly agree" (0.9%).
- Motivate new people to entry in the farm gate: "agree" (95.6%) or "strongly agree" (1.8%).
- Technical and "other" support: "neither agree nor disagree" (73.7%) and only 6.84% "agree".
- Insurance: "agree" (60.5%) and "strongly agree" (39.5%).

Regarding the positive attributes of contract farming for the "contractor", the most important potential (according to the members' opinion) is the better product quality: (74%) ("agree" and "strongly agree").

The main pitfalls for the farmers are the following (Fig. 4):

- Dependence from the "contractor": "agree" and "strongly agree" (75.4%).
- Low countervailing power (69.3%)
- Contradicting interests (3.5%)

Fig 3: Main potentials of contract farming for the "Farmers" and the "Contractor".

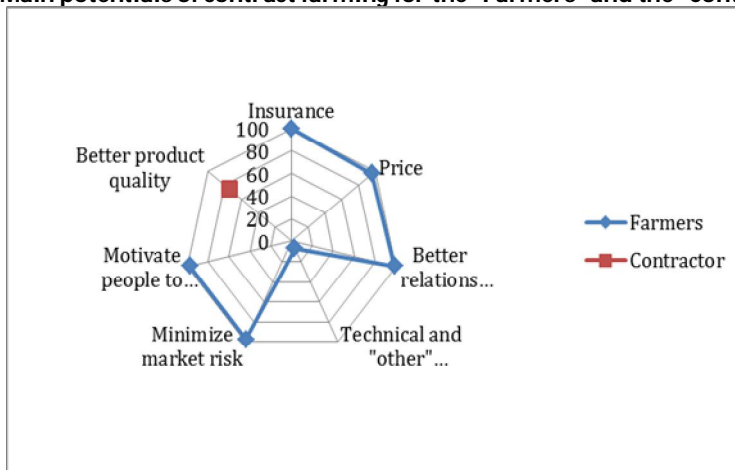
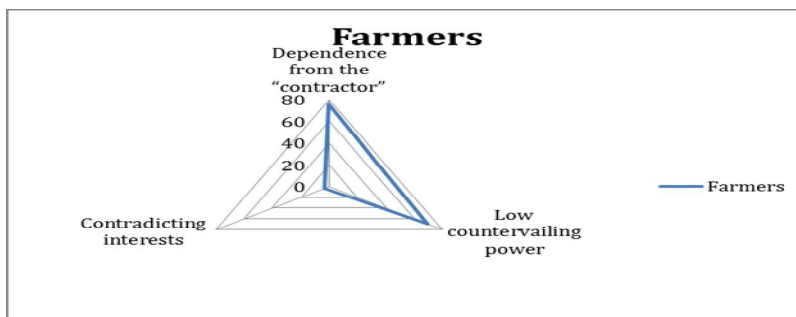


Fig. 4: **Main pitfalls of contract farming for the “Farmers”.**



### 5. Conclusions

The key objective of this paper is to study contract farming through agricultural cooperatives and, more specifically, the process for the production of brewery barley by specific cooperatives in the broader region of Thessaloniki through contracts with the 'Athenian Brewery' company.

This research paper made it clear that the role of the two agricultural cooperatives in the implementation of contract farming between the member-producers and the 'ATHENIAN BREWERY' company is important, as they are able to regulate-organise a safe collaboration.

The principal benefits of contract farming for producers, according to the answers provided by the member-producers of the two cooperatives, are that they can ensure the disposal of the entire quantity of the product they will produce from the very beginning of the cultivation period, that they know the price at which their crop will be sold before hand, and that their payment at a pre-arranged time set out in the contract is ensured.

Cooperatives benefit by ensuring guaranteed disposal of production and higher income for their members, which contributed to their better operation and increased bargaining power.

The company entering the contract ensures specific quantities of raw materials at the time it requires them, according to specific specifications (cultivar, qualitative characteristics, etc.). Thus, the company is able to organise the production process for its end product more functionally, as it is able to ensure in advance the entirety of the raw materials required, at the moment they are required (Singh, 2002). Finally, Athenian Brewery benefits from the contract farming programme because, through the advertisement, it informs Greek consumers that its products are made exclusively from Greek barley, which contributes to its preference by consumers.

The rapid growth of contract farming in Greece coincided with the onset of the economic crisis our country has been facing during the last years. The member-producers of the Epanomi cooperative began farming barley under contracts in 2010 and, to date, the number of participants has more than doubled. There is an increasing trend in the number of contracted members at the Trilofos cooperative, which began its collaboration with Athenian Brewery in 2013 and, by 2014, had doubled the number of programme participants. The above figures confirm our last research hypothesis, i.e. that the economic crisis facing our country in recent years contributed to the increase in the production of agricultural products via contract farming.

This study has certain limitations. First, the company did not accept to fill out questionnaires in order to present its view on the research hypotheses of this study.

Second, the specific results cannot be generalised for the entire country, as the sample under examination constitutes just a small percentage of the producers of the entire country who grow brewery barley via contract farming. It would be expedient for similar studies to be conducted in other regions of the country in order to achieve more general conclusions. Third, it would be interesting to expand the study to other agricultural products being sold via similar contracts. Fourth, a fruitful direction of future research would be to conduct an experiential comparison of the process of contract farming through farmers' cooperatives and through isolated producers, without the intervention of cooperatives.

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